

SCREW LESS CLIP MOUNTED COMPUTER DRIVE

1. Background of Invention

Field of Invention

This invention pertains to the design of a screw less, clip mounted computer drive.

Specifically, in the present invention, a traditional drive mounting bracket or computer chassis is equipped with flexible tabs which secure a clip designed to engage and be locked into the standard screw holes located on the drive being attached.

Description of Prior Art

Historically, computer drives such as CD-ROMs, floppy disks, DVD drives and the like, were attached to the chassis of a computer using standard micro sized machine screws. While such method of attachment was secure and precise, it required significant amounts of labor. Further, even in the most careful of environments, damaged resulted to the other internal components of the computer due to dropped screws and tool slippage.

The perceived solution in the computer industry to the problems inherent in the screw type drive attachment means has been to incorporate separate drive rails in the chassis design which allowed the computer drive being attached to slide into and then be locked into place. Typical of this type of attachment are those inventions disclosed in U.S. Patents No. 5,806,949; 5,801,920; 5,734,557; 5,599,080; 5,595,501; and 5,262,923. This solution, however, did not eliminate the use of micro sized machine screws to attach the rails to the computer drives . Additionally, use of rails necessitated the need for some type of electrical conductive grounding path between the metal drive housing and the metal computer chassis as disclosed on page 1, line 64 of U.S. Patent 5,734,557. Since the rail method of attachment did not eliminate the need for micro sized machine screws and in fact created a need for additional grounding, this method has not reduced the costs and

1 complexity of the traditional screw type assembly.

2 **2. Objects of the Invention**

3 It is the object of the present invention to provide a means to attach a computer
4 drive that is both easy as well as inexpensive. Furthermore, it is an object of the present
5 invention to provide a computer drive attachment means that does not require the use of
6 screws.

7 **3. Summary of Invention**

8 The present invention completely eliminates the needs for screws or assembly tools
9 while installing a drive component into a computer chassis. In the present invention, a
10 securing clip is used to fasten either one or more computer drives to a computer chassis.
11 Although any number of securing clips can be used, the present invention utilizes at least
12 two securing clips. The securing clips contain at least two securing pins which are small
13 and long enough to fit through pin alignment holes in the computer chassis into the
14 standardized screw holes present in the computer drive being installed. The securing clip
15 of the present invention utilizes a securing clip with four (4) securing pins. The securing
16 clips are then fastened to the computer chassis using any screw-less, conventional means
17 of attachment such as glue, welds, Velcro® or two sided tape.

18 Although any screw-less, conventional means of attachment can be employed to
19 attach the securing pins to the computer chassis, in the present invention, the securing
20 clips are fastened to the computer chassis using clip mounting features. The securing clips
21 are equipped with flexible tabs designed to engage clip mounting features attached to or
22 formed from the computer chassis. The clip mounting features can be either formed
23 directly from the computer chassis material or produced separately and attached to the
24 computer chassis using any conventional means such as glue, welds, Velcro® or two sided
25

1 tape, Once the securing clips have engaged the clip mounting features, the securing pins
2 will be forced through the holes in the computer chassis into the standardized screw holes
3 present in the drive being installed. Both the clip mounting features as well as the securing
4 clip can be made from any material and of be any size so long as that when the two are
5 engaged, the engagement is sufficient to form a secure computer drive attachment.

6 **4. Brief Description of the Drawings**

7 **Figure 1** is an exploded isometric view of the invention depicting two typical
8 computer drives before installation into the computer chassis.

9 **Figure 2** is an isometric view showing 2 typical computer drives as installed into a
10 computer chassis using the present invention.

11 **Figure 3** is an isometric view of a securing clip with four securing pins.

12 **Figure 4** is an isometric view of the installation of a single typical computer drive.

13 **5. Detailed Description of the Invention**

14 For a detailed description of the preferred embodiment of the present invention,
15 please refer to Figures 1-4 in which like components are given like numbers for easy
16 reference. Figure 1 depicts the installation of two typical computer drives (5). Shown in
17 Figure 1 are the standardized screw holes (6) present on computer drives (5). The
18 computer drives (5) are placed into the computer chassis (4) so that the standardized
19 screw holes (6) are aligned with the pin alignment holes (7). The securing pins (2) of the
20 securing clip (1) are positioned through the pin alignment holes (7) into the standardized
21 screw holes (6). The securing clip (1) is attached to the computer chassis (4) using clip
22 mounting features (3). The clip mounting features (3) engage flexible tabs (8) present on
23 the securing clip (1).

24 Figure 2 depicts the computer drives (5) after they have been installed into the

1 computer chassis (4) but before the securing clip (1) has been attached to the clip
2 mounting features (3). Figure 3 shows an enlarged view of the flexible tabs (8) on the
3 securing clip (1) along with the securing pins (2).

4 Figure 4 shows the installation of one typical computer drive (5) in a computer
5 chassis using the securing clips (1) with securing pins (2) inserted through pin alignment
6 holes (7) into standardized screw holes (6). Also shown in Figure 4 are the clip mounting
7 features (3).

8 While the Invention has been described with reference to certain preferred
9 characteristics, those skilled in the art will appreciate that certain changes and
10 modifications can be made without departing from the scope and spirit of the Invention as
11 defined by the following claims.

12 **6. Claims**

13 I claim:

- 14 1. A screw less means for attaching a computer drive comprising securing clips
15 and securing pins.
- 16 2. The screwless computer drive attachment means as in claim 1 wherein the
17 securing clips further comprise at least two securing pins small enough and
18 long enough to fit through holes present on the computer chassis, into the
19 standardized screw holes present on the computer drive.
- 20 3. The screwless computer drive attachment means as in claim 2 further
21 comprising a means for attaching the securing clips to the computer chassis.
- 22 4. A screw less means for attaching a computer drive comprising securing clips,
23 securing pins and clip mounting features.
- 24 5. The screwless computer drive attachment means as in Claim 4 wherein the